ETHIOPIA

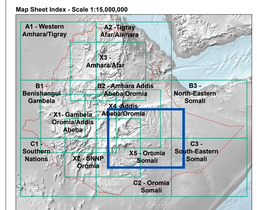
Geographic Base Map

Tile X5 Standard Map Series 1:500,000

Map Sheet # 13 — X5 - Oromia Somali

WLRC Land Cover Map 2016

Map Sheet Index - Scale 1:15,000,000



1:500,000

0 5 10 20 30 40 50 km

N

UTM Grid: 100 km Interval
Geographic Grid: 2 Degrees Interval
Projection: Universal Transverse Mercator (UTM)
UTM Zone: UTM2 37 (UTM2 36 & 38 projected)
Meridian of Origin: Equator
Horizontal Datum: WGS84
Vertical Datum: Mean Sea Level
Spheroid: WGS84

Universität Bern — CDE Centre for Development and Environment
Schweizerische Eidgenossenschaft / Confédération suisse / Confederazione Svizzera / Confederaziun svizra
Federal Department of Foreign Affairs FDFA, Swiss Agency for Development and Cooperation SDC
Water & Land Resource Centre

Legend

Administration
- National boundary
- Woreda
- Farmland
- Forest
- National Park

Settlement
- State capital
- Region capital
- Large settlement
- Medium settlement
- Small settlement
- Not classified

Infrastructure
- Airport
- Runway
- Meteo station
- Gauging station
- Health post
- Dam

Hydrology
- Marshland
- Well

Transport
- Railway
- Transnational road
- Primary road
- Secondary road
- Tertiary road
- Track
- Path
- Residential road
- Railway under construction

Drainage
- Temporary rivulet (cat. 2)
- Occasional river (cat. 3)
- Seasonal river (cat. 4)
- Perrenial river (cat. 5)
- Main river (cat. 6)
- Stream (cat. 7)
- Large stream (cat. 8)

WLRC Land Cover Classes
- Afroalpine
- Barrenland
- Cropland
- Forest
- Grassland
- Settlements
- Shrub/bush
- Water body
- Wetland
- Woodland

Topography
- Mountain peak
- Contour lines (500m interval)

Surface Water
- Lake
- Episodic lake

How to read the "WLRC Land Cover Map 1:500,000"

The main methodological approach implemented to map the complex landscapes of Ethiopia at the required scales for the MapServer series was the majority and minority concept of landscape segregation that translated into the HCU-based mapping (Homogenous Image Classification Units). The employment of such an "exclusion-based" approach (e.g. sub-setting of the Landsat imagery and gradually reducing the minorities/majorities) can be considered as a breakthrough in deriving important land cover information in heterogeneous landscapes, such as the rainfed agricultural area of Ethiopia. Nevertheless, the final land cover was mapped using an approach that combined the automated HCU approach with expert knowledge and visual delimination of units. This approach made it possible to distinguish cultivated land from other land use or land cover classes. Unsurprisingly, the actual amount of cultivated land is considerably larger than that indicated by official statistics in use since the mid-1980s, when the rural population was half its current size. The team also mapped large-scale land use systems, inclusive of any foreign direct investments. Results of the study show there has been a considerable expansion and intensification of farming in the past three decades, unfortunately leading to more soil erosion.
Reference: Tibebu Kassaymar, Sandra Eckert, Kaspar Hurni, Gete Zeleke & Hans Hurni (2016): Reducing landscape heterogeneity for improved land use and land cover (LULC) classification across the large and complex Ethiopian highlands, Geocarto International,
http://dx.doi.org/10.1080/10106049.2016.1213161

The map base (topography) and feature classes (e.g. categories of roads, settlements, rivers) derived from a wide range of individual data sources: Open Street Map data from https://osmaxx.hsr.ch, terrain features (e.g. spot heights, contour lines, hillshade) from https://www.eorc.jaxa.jp/ALOS/en/aw3d30/index.htm, and Landsat imagery in natural colours from https://earthexplorer.usgs.gov. Please use the scale bar for measurements on the map when resized to scales other than the original A0 pdf-format! The Standard Map Series 1:500,000 best suits the needs of regional-/zonal planning and policy advice.

Geospatial Information

National spatial data infrastructure (NSDI) plays a significant role in the development of Ethiopia's fast growing economy, but it contributes just as much to sustainable use of natural resources, infrastructure planning, and efficient management of food crises. **Maps are means of visual communication** and foster understanding of complex problems. They are containers of data, show spatial patterns, enable geographic analysis, and contribute to the UN's "data revolution" initiative. It is common knowledge that people retain 80% of what they see, 20% of what they read, and 10% of what they hear. Maps and visuals are understood a thousand times faster than text, and content with visuals gets 94% more total views on the Internet. This makes maps an ideal means of development and communication on all levels.

The *MapServer* Ethiopia project

MapServer Ethiopia is a web-based open-source platform for the dissemination of geospatial data maps and information about Ethiopia. The website contains three main web services that enable **(1) mapping based on pre-produced maps, (2) online mapping of selected information layers, and (3) open geospatial data download.** The MapServer Ethiopia data platform and website are intended to improve mapping and spatial understanding in the context of project management, natural resources governance, humanitarian aid work, and academic education.
The MapServer Ethiopia project is part of the activities of the Water and Land Resource Centre (WLRC) to improve data sharing and dissemination in support of land and water resources management. The MapServer Ethiopia is funded by the Swiss Agency for Development and Cooperation (SDC).

The Water and Land Resources Centre

The Water and Land Resource Centre (WLRC) in Addis Abeba, Ethiopia www.wlrc-eth.com was established by the Centre for Development and Environment, University of Bern, Switzerland www.cde.unibe.ch in 2015 as an institution associated to Addis Abeba University. Since its inception the centre systematically monitors, collects, integrates, and disseminates data and knowledge in support of sustainable management of natural resources. Today, the centre builds on long-standing achievements to reduce land degradation, improve livelihoods in rural areas and serves as regional knowledge hub and cross-scale dialogue in land governance.

Origin of map data

Building on **EthioGIS-3**, the new (2018) release of the National Geospatial Database System for Ethiopia, the MapServer Ethiopia www.mapserver-ethiopia.org aims at providing a web-based gateway for open and non-authoritative geospatial information for the Federal Democratic Republic of Ethiopia. The mapping services are developed in close collaboration with a number of decision-making actors, government authorities, NGOs, international organisations, and the civil society. The MapServer Ethiopia is part of WLRC's Water and Land Resources Information System (WALRIS) and adds a portal for environmental and socio-economic data, data sharing facilities and server capabilities for registered user through www.walris.wlrc-eth.org.
Beside of WLRC's own geospatial data foundation, the main MapServer Ethiopia product lines are scalable on- and offline mapping services based on a wealth of free and open geodata providers

Disclaimer

The boundaries, denominations, and any other information shown on this map do not imply any judgment about the legal status of any territory, or constitute any official endorsement or acceptance of any boundaries, on the part of any Government. The joint publishers - the Water and Land Resources Centre, Addis Abeba, Ethiopia and the Centre for Development and Environment, University of Bern, Switzerland - assume no liability for any direct, incidental, or consequential damages whatsoever, and are not responsible for claims by any third party.

Authors

Jürg Krauer, Ulla Gaemperli, Kaspar Hurni, Matthias Fries, and Lukas Wuersch of CDE Geoinformatics, University of Bern, Switzerland; Gete Zeleke, Tibebu Kassawmar Nigussie, and Yohannes Araqie Sisay of WLRC, Addis Abeba, Ethiopia.

Reference

Please note that you must indicate the source of geospatial data or map layers when using this information in other products, as follows: WLRC Ethiopia and CDE, University of Bern, Switzerland. MapServer Ethiopia: Thematic and Geographic Overview, Field and Base Map Series [map] 1:100,000-1:1,500,000. Release 3.0/December 2018.
Internet: www.mapserver-ethiopia.org

Contacts

Ethiopia: WLRC, Megenagna, Diaspora Square, P.O. Box 8707, Addis Abeba, Ethiopia;
Tel: +251 116 612236 or 612226, Fax: +251 116 612229
Switzerland: Centre for Development and Environment, University of Bern, Mittelstrasse 43, 3012 Bern, Switzerland; Tel: +41316318822, info@cde.unibe.ch